

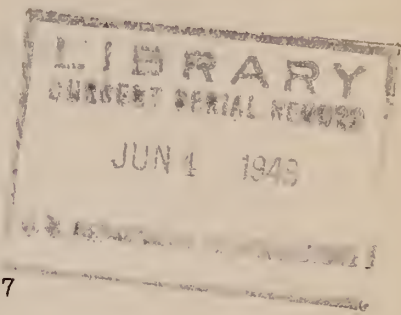
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SOUTHERN REGIONAL RESEARCH LABORATORY
2100 Robert E. Lee Boulevard
New Orleans 19, Louisiana



A LIST OF
PUBLICATIONS ISSUED JULY-DECEMBER 1947

(With Abstracts of Articles and Addresses)

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Office, Washington 25, D. C.

Bureau of Agricultural and Industrial Chemistry
Agricultural Research Administration
United States Department of Agriculture

No.

ARTICLES AND ADDRESSES

Apparatus, Analytical Methods, and Techniques

None.

Cotton and Cotton Products

- 1 DEAN, J. D., and Worner, R. K.

THE DEGRADATION OF UNTREATED COTTON FABRICS EXPOSED TO WEATHER IN A SUB-TROPICAL CLIMATE. Am.Dyestuff Repr. 36, 405-10, 423-4 (1947).

With the objective of establishing year-round degradation patterns to aid in interpreting the performance of chemically treated fabrics exposed to weather in any season, replicate samples of selected fabrics were exposed to weather at spaced intervals of 2 months throughout the year, but under different seasonal conditions, and the degradation data secured were averaged. Changes in breaking strength and in cuprammonium fluidity were the chief criteria of degradation. Different degradation patterns resulted from the effects of weather on gray and on commercially purified cloth. Large breaking strength losses in gray cloth attended by relatively slight increases in fluidity were attributed largely to biological action, since this type of degradation is not accompanied by concurrent fluidity increases. The slightly greater average strength losses in commercially purified fabrics, accompanied by relatively high fluidity values, were believed to be chiefly attributable to the photochemical action of sunlight.

- 2 DEAN, J. D., Fynn, P. J., et al.

WEATHER PROTECTIVE TREATMENTS FOR COTTON DUCK. Presented by the Southeastern Section of the American Association of Textile Chemists and Colorists. Chicago, October 25, 1947. Am. Dyestuff Repr. 36, P705-10 (1947).

With the objective of finding a treatment capable of protecting cotton fabric, particularly awning duck, against weather, without adverse effect on the cloth, the following four types of experimental formulations were tested by exposure to total weather at four geographical locations, to sunlight alone, and under carbon arc radiation: (1) clear resins alone; (2) resin-bound pigments; (3) pigments precipitated in situ; and (4) pigments in situ after-treated with the clear resins. Urea-formaldehyde used alone had weather-protective properties and was even more

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effective when combined with pigments. Certain pigments applied in situ and pigments bound with oil-modified alkyd resin also effected a high degree of weather resistance. Treatments on samples exposed in a normal incidence cabinet to sunlight alone were rated in the same order of effectiveness as by outdoor exposure -- except for the gray control sample which was degraded more than the bleached control. While carbon arc exposures did not reveal a definite correlation with outdoor exposures, they indicated that a weathering machine can aid in classifying the ultraviolet light-screening properties of experimental treatments.

- 3 GOLDTHWAIT, Charles F., Smith, Herbert O., and Barnett, Mary P.

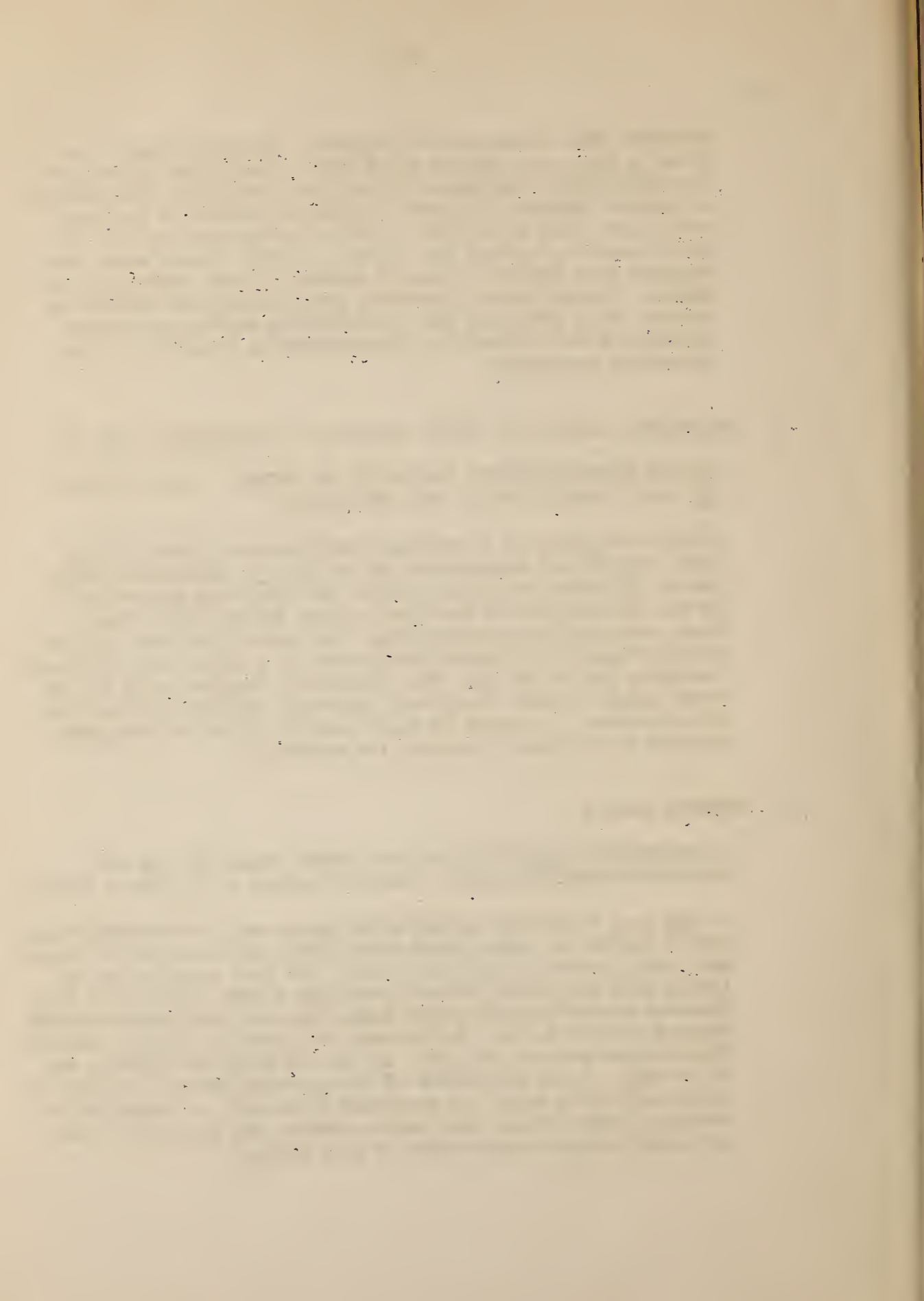
NEW DYE TECHNIQUE SHOWS "MATURITY" OF COTTON. Textile World 97, No. 7, 105-8, 201-2, 204, 206 (1947).

Details are given of a technique which employs direct dyeing with a particular combination of two dyes of contrasting color and of different dyeing properties for detecting the presence of the thin-walled, or immature, cotton fibers which often cause problems during processing. The method has been applied to the diagnosis of trouble experienced by a cotton mill in manufacturing and in dyeing. Its simplicity, together with the extreme color contrast frequently obtained, suggests a wide field of usefulness. A number of these possibilities are discussed. Colored photographs illustrate the material.

- 4 GUTHRIE, John D.

INTRODUCTION OF AMINO GROUPS INTO COTTON FABRIC BY USE OF 2-AMINOETHYLSULFURIC ACID. Textile Research J. 17, 625-9 (1947).

It has been found that enough amino groups may be introduced into cotton fabrics to give a dark dyeing with acid wool dye by treatment with 2-aminoethylsulfuric acid. The best results are obtained when the fabric is moistened with a 10% solution of this compound containing 25% sodium hydroxide, and then heated for 40 minutes at 100° C. in a drying oven, followed by thorough washing. The nitrogen content of fabric so treated is about 0.56% of the dry weight. Other properties of the aminized fabric, besides its dyeing with acid dyes, are described in detail. A method of introducing amino groups into cotton fabrics, by use of the less economical 2-chloroethyl-amine is also given.



No.

- 5 KETTERING, James H., and Kraemer, Rita M.

COMMERCIAL COTTON-BLEACHING PROCESSES AND THEIR EFFECT ON FABRICS. U. S. Dep. Agr. Tech. Bull. No. 941. 37 pp. August 1947.

Eleven bleaching processes were investigated representing three general classes of modern commercial bleaching methods: (1) caustic soda kier boil and hypochlorite bleach; (2) caustic soda kier boil and hydrogen peroxide kier bleach; and (3) continuous bleaching. Analytical procedures used to gauge the effectiveness of the processes are described. Criteria of effectiveness were residual materials, fabric changes, degree of whiteness, and absorbability of fabric samples taken after various steps of the processing. The caustic soda kier boil and hypochlorite bleach yielded fabrics with the lowest amounts of residual impurities and the highest cellulose content; and the caustic soda kier boil and hydrogen peroxide kier bleach yielded fabrics with the greatest amounts of residual impurities and the lowest cellulose content. When measured by fabric changes, the caustic soda kier boil and hydrogen peroxide kier bleach showed slightly better results than the continuous processes using hydrogen peroxide; and both of these gave better results than the caustic soda kier boil and hypochlorite bleach. Desizing treatments degraded the fabrics slightly, and increased moisture contents and the apparent amounts of alcohol-soluble materials and wax. As judged by degree of whiteness and absorbability, no differences were revealed in the three types of processes. Each class of bleaching process had some disadvantages, but all three classes produced fabrics of good commercial quality.

- 6 KETTERING, James H., and Berard, W. Norbert

PILOT-PLANT BLEACHING OF COTTON FABRICS. Am. Dyestuff Reprtr. 36, 552-4 (1947).

A satisfactory pilot-plant method of bleaching 100- to 200-pound lots of fabrics has been developed as part of a broad program of research on the bleaching of cotton fabrics. Formulas, liquor ratios, temperatures, description of the apparatus, and other details of the procedure are given. The results of physical and chemical analyses showed that the two types of cotton fabric investigated by the method, when judged by breaking strength and fluidity in cuprammonium hydroxide, met present commercial standards.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN WHICH ARE CONTAINED THE
MOST IMPORTANT AND INTERESTING
CIRCUMSTANCES OF HIS REIGN
FROM HIS MARRIAGE TO HIS DEATH
BY JOHN BURNET
OF THE UNIVERSITY OF OXFORD
IN TWO VOLUMES
THE SECOND VOLUME

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No.

7 LEWIS, Walter S.

EFFECT OF ALTERNATE HEATING AND COOLING ON THE BREAKING STRENGTH AND ELONGATION OF COTTON AND RAYON TIRE CORDS. Textile Research J. 17, 431-7 (1947).

One mercerized (Wilds 13, 17/4/3 construction) and two unmercerized (Stoneville 2 B and Wilds 13, 23/4/3 construction) cotton tire cords and three commercial rayon tire cords (1100/2 construction) were subjected to alternate heating for 16 hours at 265° F. and then cooling for 8 hours at 70° and 65% relative humidity. The effects on the tenacity (grams per denier) and elongation were determined at the end of 1, 24, 36, and 48 heating periods. Tests were conducted on the cords in the oven-dry state, and also after conditioning in a standard atmosphere of 65% relative humidity at 70°. Two methods of measuring elongations at breaking load were used -- reading both from the point where the pen first registered on the chart and where it left the axis. The mercerized cord showed the greatest resistance to change in tenacity and was generally followed by one of the rayons. Under standard testing conditions the two unmercerized cords retained tenacity better than the two other rayons, but this order was reversed under oven-dry conditions. The rayons exhibited higher initial elongations and, with one exception, greater losses on heating and cooling than did the cottons. The two methods of measuring elongation gave a slightly different order of rankings of the cords. The degrees of polymerization of the cellulose changed after 48 heating and cooling cycles from 2400 to 385 for the Wilds 13 unmercerized cord; from 2360 to 310 for the mercerized cord; and from 430 to 129 for the rayon cords.

8 MAGNE, Frank C., Portas, H. J., and Wakeham, Helmut

A CALORIMETRIC INVESTIGATION OF MOISTURE IN TEXTILE FIBERS. J. Am. Chem. Soc. 69, 1896 (1947).

The calorimetric technique employing the method of mixtures has been applied in a study of the nature of moisture in textile fibers. Measurements were made on native and mercerized cotton fibers and on rayon, nylon and glass fibers with various moisture contents. The amounts of freezing and nonfreezing water were calculated for each fiber-moisture combination measured. Interpretation of the results for cellulose fibers permits differentiation between water of primary adsorption and water adsorbed in multilayer formation or by capillary condensation. From the data obtained estimates of the degree of crystallinity and capillary volumes with certain limiting radii were made for the fibers.

No.

- 9 PHILIPP, Howard J., Nelson, Mary L., and Ziffle, Hilda M.

CRYSTALLINITY OF CELLULOSE FIBERS AS DETERMINED BY ACID HYDROLYSIS. Textile Research J. 17, 585-96 (1947).

A study of the kinetics of the heterogeneous hydrolysis of cellulose indicates that there are two distinct rates which have been attributed to the rapid hydrolysis of the loose amorphous regions and to the slow hydrolysis of the dense crystalline portions of the fiber. Based on this interpretation, a simple method for the determination of the relative proportions of crystalline and amorphous cellulose has been developed. The method was applied to a series of natural and regenerated cellulose fibers and the resulting "degree of crystallinity," defined as the amount of crystalline cellulose in a sample expressed as a decimal fraction of the total cellulose, was tabulated. Results obtained on four samples of rayon are very well correlated with crystallinity data derived from X-ray diffraction patterns. There is apparently no correlation between the degree of crystallinity and the tenacity of five samples of rayon. In six samples of Stoneville cotton there appeared to be no relationship between the degree of crystallinity and crystallite orientation. There are indications that the ultimate elongation and the moisture absorption of the rayon samples are proportional to the content of amorphous cellulose.

- 10 REEVES, Richard E., and Giddens, Joel E.

STABILIZATION OF CELLULOSE NITRATE WITH AMMONIA. Ind. Eng. Chem. 39, 1303-06 (1947).

The marked stabilization of unstable propellant-type cellulose nitrate caused by treatment with ammonium hydroxide and faintly acid solutions of ammonium salts is described. The corresponding effect was not obtained with a number of common metallic hydroxides, salts, and amines. With dilute solutions of ammonium hydroxide the stabilization was produced almost instantaneously at room temperature. Stability was measured by tests carried out at 110° and 134.5° C. The ammonia-induced stability may be reversed by suitable treatment with mineral acids, but subsequent treatment with ammonia again produces stability. Cellulose nitrate which has been stabilized by long boiling and beating treatments is not further stabilized by ammonia treatment.

- 11 REEVES, Richard E., and Giddens, Joel E.

MECHANISM OF AMMONIA STABILIZATION OF CELLULOSE NITRATE. Ind. Eng. Chem. 39, 1306-09 (1947).

Pyro-type cellulose nitrate purified in the conventional manner

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without repeated boiling and beating treatments, when judged by heat tests only, does not possess adequate stability unless sulfate content has been reduced to an extremely low value. But nitrate still containing appreciable amounts of sulfate can be treated with cold, dilute, aqueous ammonia so as to markedly increase stability without removal of the sulfate. The stabilization appears to be the result of neutralization of the sulfuric acid trapped within the fibrous cellulose nitrate. In freshly prepared cellulose nitrate which has been thoroughly rinsed but not boiled, the sulfate is apparently retained in the form of cellulose acid sulfate. Upon ammonia treatment, this material retains approximately 1 mole of ammonia per mole of sulfate. After a brief boil there is some evidence indicating that the trapped acid may be partly in the form of free sulfuric acid. It is undissociated ammonia and not ammonium ion which brings about the stabilization. Apparently ammonium ion, as well as the ions of many other bases, is unable to penetrate the fiber.

12 REID, J. David, and Daul, George C.

THE PARTIAL CARBOXYMETHYLATION OF COTTON TO OBTAIN SWELLABLE FIBERS, I. Textile Research J. 17, 554-61 (1947).

For the purpose of obtaining quickly swellable fibers to aid in making cloth less pervious to water, cotton has been partially carboxymethylated by the impregnation of cellulose with a solution of monochloroacetic acid followed by treatment with a strong solution of sodium hydroxide, yielding the sodium salt of carboxymethylcellulose. Degree of substitution may be varied by changes in experimental conditions. With substitution of about 1 acid group per 15 glucose residues or less, the treated cotton does not vary greatly in breaking strength, feel, appearance, or moisture content from mercerized controls; but swelling capacity and water retention are greatly increased. The dyeing characteristics of the treated cotton are different from those of untreated cotton. Although the addition of small amounts of carboxymethyl group to the cellulose molecule does not protect it from microbiological attack, addition of copper, silver, or mercury, to form the corresponding insoluble salt of carboxymethylcellulose, imparts considerable resistance to such attack.

13 SCHUYTEN, H. A., Weaver, J. W., and Reid, J. David

PREPARATION OF SUBSTITUTED ACETOXY SILANES. J. Am. Chem. Soc. 69, 2110-12 (1947).

Silicon tetraacetate and substituted acetoxysilanes have been prepared from the corresponding chlorides and anhydrous sodium acetate in an anhydrous solvent. The physical properties of some substituted acetoxysilanes are recorded. Seven of the compounds reported are new.

No.

14 SCOTT, Walter M.

GOVERNMENT RESEARCH WORKS HARD TO IMPROVE COTTON PRODUCTS.
Daily News Record, No. 248, Whole Number 176, p.16. New York.
October 22, 1947.

Examples of research conducted at the Southern Regional Research Laboratory to improve cotton products are given as typical of the kind of research needed to extend the usefulness of cotton. A method of rotproofing by partial acetylation has been found which has proved successful in industrial trials. Study of weathering included work on the destructive effect on cotton of each component of sunlight. The water resistance of cotton fabrics has been improved by constructing them so that air spaces between the fibers swell and close when the fibers are wetted -- tightly woven fabrics from an immature (thin-walled) cotton gave better results than similar fabrics from mature (thick-walled) cotton. A new dyeing technique that differentiates between mature and immature fibers has been developed to aid in the selection of cottons for research and manufacture. Low-grade cotton fabrics have been converted into quality products by chemical finishing.

Cottonseed, Peanuts, and Other oilseeds
and their Derived Products

15 BOATNER, C. H., Hall, C. M., O'Connor, R. T., Castillon, L. E., and Curet, M. C.

PROCESSING OF COTTONSEED. II. Factors Determining the Distribution and Properties of Pigments in Products Prepared by Solvent Extraction. J. Am. Oil Chemists' Soc. 24, 276-83 (1947).

Criteria have been established which provide a basis for obtaining cottonseed oil and meal whose pigmentation may be more or less controlled. For the extraction of oil free of gossypol and gossypurpurin, moisture is excluded from the system and solvents other than water-miscible alcohols, ketones, and ethers are used. An alternative method is extraction of oil containing essentially all of the pigments of the seed by use of a number of water-miscible or other solvents capable of rupturing the glands. The pigment content of the solvent-extracted meals will be determined by the original pigment content of the seed, and the solubility of the pigments in the solvent employed. A third alternative is use of a special gland flotation process which in a single operation gives intact pigment glands and both oil and meal substantially free of pigments.

No.

- 16 BOATNER, C. H., Hall, C. M., O'Connor, R. T., and Castillon, L.E.

PIGMENT GLANDS OF COTTONSEED. III. Distribution and Some Properties of Cottonseed Pigments. *Botan. Gaz.* 109, 108-20 (1947)

This investigation was conducted with the twofold objective of (1) determining the extent to which the pigments of cottonseed occur inside and outside glands in the seeds; and (2) of acquiring information concerning the extraction of the pigments during extraction of the oil by means of different solvents. Experimental data are presented to show that all the gossypol and gossypurpurin are segregated in the glands and constitute the only detectable pigments in the glands of the four varieties studied. Gossypol content, in contrast to that of gossypurpurin, was found to be relatively constant, and seemed to be determined by the amount of glands in the kernel. A yellow pigment detected in the oil of the extraglandular tissue was obtained free of the intraglandular pigments. It was apparently relatively stable and differed from other known pigments of cottonseed. Methods for the extraction and estimation of the pigments of cottonseed have been developed on the basis of the information obtained concerning their distribution and properties.

- 17 FISHER, G. S., Bickford, W. G., and Dollear, F. G.

CORRELATION OF STABILITY WITH FATTY ACID COMPOSITION OF HYDROGENATED VEGETABLE OIL. *J. Am. Oil Chemists' Soc.* 24, 379-82 (1947).

Cottonseed, peanut, and linseed oils were hydrogenated under selective and nonselective conditions and samples were withdrawn periodically for determination of their fatty acid composition, keeping quality, and other characteristics. The results were submitted to graphical and statistical analysis which permitted the following conclusions: When cottonseed or peanut oil is hydrogenated either under selective or nonselective conditions, the change in the reciprocal of the keeping quality, as measured by the active oxygen method, is proportional to the change in linolein content up to the point of disappearance of linolein. After all linoleic acid has disappeared, the change in keeping quality is proportional to the change in olein content. When linseed oil is hydrogenated under selective conditions, the change in the reciprocal of the keeping quality is proportional to the change in the linolenin content up to the point of disappearance of the linolenin.

- 18 FISHER, G. S., Kyame, Lillian, and Bickford, W. G.

NORCONIDEURIN: A NEW ANTIOXIDANT FOR FATS AND OILS. *J. Am. Oil Chemists' Soc.* 24, 340-3 (1947).

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF CHEMISTRY
CHICAGO, ILLINOIS

TO THE HONORABLE SENATE OF THE UNIVERSITY OF CHICAGO
I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the proposed extension of the term of office of the members of the Board of Trustees of the University of Chicago. I am glad to hear that the Senate is considering this matter. I am sure that the Board of Trustees will be glad to co-operate with the Senate in any action that may be taken. I am, Sir, very respectfully,
Yours very truly,
JOHN D. COLEMAN
President of the University of Chicago

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Norconidendrin, prepared by hydrolysis of conidendrin, a polyphenolic substance obtained by extraction of sulfite waste liquors from the manufacture of pulp from western hemlock, possesses antioxidant activity in hydrogenated and unhydrogenated cottonseed and peanut oils, in a peanut oil essentially free of natural antioxidants, and in lard. Norconidendrin, as well as other polyphenols tested, exhibited greater antioxidant activity in the peanut oils used than in several other vegetable oils and still greater activity in substrates which contained only small amounts of natural antioxidants. Effectiveness was appreciably enhanced by the addition of acid-type synergists. Norconidendrin may be added to an oil before deodorization without affecting odor, color, or flavor.

- 19 FISHER, G. S., O'Connor, R. T., and Dollear, F. G.

FATTY ACID COMPOSITION OF HYDROGENATED VEGETABLE OILS. J. Am Oil Chemists' Soc. 24, 382-6 (1947).

The fatty acid compositions of a number of unhydrogenated and hydrogenated peanut, cottonseed, soybean, and linseed oils have been calculated from the iodine number, thiocyanogen number, ultraviolet absorption after alkali-isomerization, and the content of saturated acids determined by a modified Bertram oxidation method. All the methods gave values in good agreement for the various samples of peanut oil. The iodine-thiocyanogen method and the modified Bertram oxidation method gave values in good accord for cottonseed oils; but the spectrophotometric method gave values for linoleic acid too high in the unhydrogenated and slightly hydrogenated cottonseed oils. Isolinoleic acid was not produced during hydrogenation of cottonseed and peanut oils under the conditions used. Its production during the hydrogenation of soybean oil can be accounted for by hydrogenation of the linolenic acid present in that oil. Isolinoleic acid absorbs about 2 moles of thiocyanogen per mole of acid. With the spectrophotometric method for the determination of linolenic acid, the characteristic structure of the ultraviolet absorption band in the region of 250-275 mμ requires examination before attributing it to the isomerization of linolenic acid.

- 20 HOFFPAUIR, Carroll L., Petty, Dorothy H., and Guthrie, John D.

GERMINATION AND FREE FATTY ACID IN INDIVIDUAL COTTON SEEDS. Science 106, 344-5 (1947).

The free fatty acid content of the nongerm half of individual cottonseed kernels was determined by a micro technique. The germ end of the kernel was germinated, and viability was correlated with free fatty acid content. Data on 369 individual cotton seeds examined showed that in seeds containing less than

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1-2% free fatty acid, on weight of kernel, the odds are better than 20 to 1 that the seeds will germinate. All seeds containing more than 5% free fatty acid, on weight of kernel, were dead.

- 21 HOFFPAUIR, Carroll L., and Guthrie, John D.

ETHANOL-EXTRACTABLE NONPROTEIN MATERIAL IN PREPARATIONS OF PEANUT PROTEIN. J. Am. Oil Chemists' Soc. 24, 393-7 (1947).

The nature and amounts of the nonprotein constituents extracted by cold ethanol at the curd stage from proteins prepared from solvent-extracted peanut meal have been investigated. The steps in the preparation of the protein are discussed and illustrated by a flow-sheet. Analyses of original meal samples, meal residues, and the air-dried and the alcohol-washed proteins are reported with respect to moisture, ash, nitrogen, phosphorus, and lipids contents, and the data are tabulated. The nonprotein material consisted of sugars, nonprotein nitrogenous substances, lipids, and ash. The sugars were practically all reducing sugars, the nonprotein nitrogenous material was amino acid in nature, with some peptide linkages, whose nitrogen distribution did not differ greatly from that reported for the protein. The chief component of the lipid material was fatty acids, possibly including some of the chain length longer than C₁₈. Also present are some phosphatides. Protein prepared similarly from cottonseed meal contained similar nonprotein materials. The sugars, amino acid material, and lipids can be removed to a considerable extent by washing the protein with alcohol in the wet curd state, more efficiently if the curds have not been coalesced by dewatering. The alcohol-washing makes drying the protein easier and seems to remove some color, but somewhat reduces solubility. It slightly lowers ash content but does not appreciably affect phosphorus content; and nitrogen content is increased.

- 22 KYAME, Lillian, Fisher, G. S., and Bickford, W. G.

HYDRAZIDES OF n-ALIPHATIC ACIDS. J. Am. Oil Chemists' Soc. 24, 332-4 (1947).

The hydrazides of the normal fatty acid series from valeric through lauric as well as those of myristic, palmitic, and stearic acids have been prepared, and their melting points and mixed melting points have been determined. All of the products are crystalline solids at room temperature and have melting points between 62° and 116° C. The melting point differential, approximately 10°, between the lowest adjacent members decreases as the series is ascended, being only 3° between palmitic and stearic acid. A plot of the melting points of the hydrazides vs

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number of carbon atoms gave a smooth curve exhibiting no alternation between even and odd members of the series. The hydrazides are readily prepared from the corresponding esters and appear to be satisfactory derivatives for identifying fatty acids of moderate molecular weight.

23 SCOTT, Walter M.

THE ROLE OF CHEMISTRY IN ADAPTING PEANUTS TO NEW USES. Peanut J. and Nut World 27, 47-8, 90-2 (1947).

Research on peanuts at the Southern Regional Research Laboratory is reviewed, with emphasis upon the commercial interest being shown in the materials that have been developed. The solvent extraction of peanuts as carried out at this Laboratory to produce essentially oil-free, solvent-free meal containing high-quality protein is described, together with some of the products obtained from the protein, such as a wool-like fiber and several adhesive materials. Laboratory-scale research on the properties of peanut oil is discussed, with mention of the lines along which future investigations to improve peanut oil in edible uses will be conducted and of plans to initiate research on the improvement of peanut butter. A resume is given of early wartime research.

24 STANSBURY, Mack F., and Guthrie, John D.

STORAGE OF COTTONSEED AND PEANUTS UNDER CONDITIONS WHICH MINIMIZE CHANGES IN CHEMICAL COMPOSITION. J. Agr. Res. 75, 49-61 (1947).

Analysis of cottonseed samples stored at room temperature, 0° C., and -18° C. showed that cottonseed may be stored for more than a year in sealed containers at 1° C. or below without appreciable change in total nitrogen, total oil, free fatty acid content of oil, iodine number of oil, peroxide value of oil, or catalase activity of the kernel if dried to a moisture content of 8.3% or lower. Analysis of peanut samples stored at the three temperatures showed that unshelled peanuts may be stored for more than 2 years in closed cans at 1° or below without appreciable change in total nitrogen and oil contents of kernels, free fatty acid content, and iodine number of the oil.

25 SWIFT, Clifton E.

THE RESEARCH FELLOWSHIP OF THE NATIONAL COTTONSEED PRODUCTS ASSOCIATION. J. Am. Oil Chemists' Soc. 24, 412-16 (1947).

A brief history is given of the origin, purposes, and accomplishments of the Research Fellowship of the National Cottonseed Products Association, with inclusion of brief biographies

No.

of the five Fellows to date, together with a list of their 26 publications under the program. Established by the Association in 1926 to collaborate with the Bureau of Agricultural and Industrial Chemistry of the U. S. Department of Agriculture, the Fellowship investigates cottonseed and cottonseed products in behalf of the cottonseed industry, with the broad objective of improving the quality and utility of cottonseed meal and oil. From 1926-36, projects were concerned principally with investigations of the meal. Since 1938 work has been centered on the oil, with some research done in 1938-39 on finding a means of increasing the feeding value of cottonseed hulls.

- 26 VIX, H.L.E., Spadaro, J. J., Westbrook, R. D., Crovetto, A. J., Pollard, E. F., and Gastrock, E. A.

PRE-PILOT-PLANT MIXED-SOLVENT FLOTATION PROCESS FOR SEPARATING PIGMENT GLANDS FROM COTTONSEED MEATS. J. Am. Oil Chemists' Soc. 24, 228-36 (1947).

This investigation was undertaken to develop on a pre-pilot-plant scale a special laboratory method previously found for separating flaked cottonseed into hulls, meal, and pigment glands. Data obtained during the several experimental stages through which the investigation has so far progressed are reported. Engineering and technical information is presented relative to fractionation of undefatted flakes as compared to defatted flakes, means of sufficiently disintegrating the flakes, the selection of suitable solvents, the effects of moisture in both solvents and flakes, the purification of pigment glands and meal, and the yields of these purified products. A concurrent development of the investigation was the production of high-purity pigment glands and of essentially gland-free meal in quantities sufficient to permit utilization research.

- 27 WILLJAMS, P. A., Boatner, C. H., Hall, C. M., O'Connor, R. T., and Castillon, L. E.

PROCESSING OF COTTONSEED. III. Color Development in Cottonseed Oil During Storage of the Seed and Crude Oil. J. Am. Oil Chemists' Soc. 24, 362-9 (1947).

Processing of cottonseed by the hydraulic press method has been carried out at two mills, one located about 100 miles farther south than the other. The varieties of seed processed and conditions during processing, which included cooking of moistened seed, were essentially the same at both mills. Seeds were also processed at the more southerly mill by the screw press method for which seed was cooked without added moisture. The crude hydraulic- and screw-pressed oils produced were stored at different temperatures for 10 months, and samples were periodically refined

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and bleached. Seeds were also stored at the two mills and were periodically processed to permit comparison between the characteristics of oils from stored seed and those of stored oils. The absorption spectra of the crude, refined, and bleached oils were determined. The rate of increase of bleach color in the oils during storage of the seed and crude oils has been correlated with temperature of storage and changes in the absorption spectra of the oils.

Sweetpotatoes and Sweetpotato Products

- 28 VELDHUIS, M. K. ^{1/} and Gordon, W. O.

EXPERIMENTS ON PRODUCTION OF FEED YEAST FROM CITRUS PRESS JUICE.
Address, Florida State Horticultural Society, St. Petersburg, Florida,
October 28, 1947.

The arrangement and operation of a large continuous-process pilot plant, as originally designed for use on sweetpotato waste, is briefly described. Its application in experiments on the production of Torula utilis feed yeast utilizing waste press liquor from a citrus feed mill is reported.

Miscellaneous

- 29 REEVES, Richard E.

CUPRAMMONIUM-2, 3-BUTANEDIOL COMPLEXES. J. Am. Chem. Soc. 69, 1836 (1947).

The behavior of the optically active 2,3-butanediols in cuprammonium hydroxide solution is noted in a "Letter to the Editor." The specific rotations measured at 25° C. for the D-(-)- and L (+)- forms of the two butanediols in water and in cuprammonium are tabulated.

- 30 RUSCA, Ralph A.

BIBLIOGRAPHY ON HIGH-FREQUENCY DIELECTRIC HEATING. American Institute of Engineers, August 1947.

This bibliography, although admittedly not complete, is one of the most comprehensive published on the subject thus far. Literature citations and patents have been classified as "Domestic" and "Foreign," and are arranged alphabetically by title in these two categories. An author index is included.

^{1/} U.S. Citrus Products Station, Winter Haven, Florida,
Agricultural Chemical Research Division.

PRESS NOTICES

Basic Studies Will be Made on Cotton to Find New Uses. October 15.
USDA 2367-47.

New Uses for Cottonseed and Other Cotton Byproducts to be Sought.
October 21. USDA 2415-47.

New and Wider Uses of Peanuts the Goal of Research. October 9.
USDA 2314-47.

Research Seeks New Uses for Rice and Rice Byproducts. October 21.
USDA 2418-47.

PATENTS

Flame-Resistant Cellulosic Material and Process for Producing Same.
Louis W. Georges and Carl Hamalainen. U. S. Patent No. 2,428,843.
October 14, 1947.

Composition Containing a Cellulose Compound and a Morpholide. Louis
W. Georges, U. S. Patent No. 2,429,679. October 28, 1947.

REPUBLICATIONS

ROLLINS, Mary L.

MICROSCOPICAL METHODS IN THE MEASUREMENT OF SWELLING IN COTTON
FIBERS: A Literature Survey. From Textile Research J. 17,
19-26 (1947). Textile J. of Australia 22, 520-2, 592-4, 676,
678 (1947).

